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**THE LEADER IN ELECTRO-OPTICS TECHNOLOGY**

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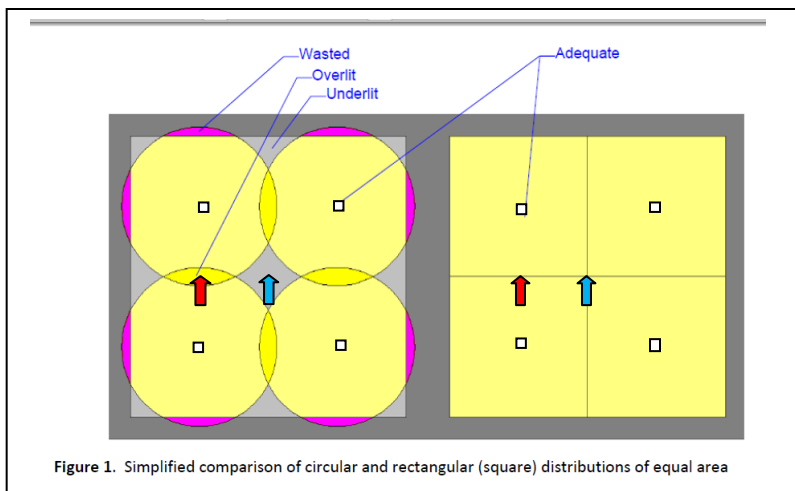
Department of Energy

Attn Richard Karney or persons documenting comments to FTE

Re: Comments on The Fitted Target Efficacy draft

I am in complete agreement with the comments submitted by my esteemed coworker Doug Paulin and would just like to add one additional comment.

One of the great myths of outdoor lighting design is that square lighting patterns are inherently more efficient than round patterns. This may or may not be true when you have a specific site geometry that is dictated by parking lanes or buildings. However, it is almost never true when lighting to a minimum criteria (i.e. per RP-20) with no restrictions on pole locations. This is best explained by using the diagram from the DOE's own FTE Overview document here:



I have added in the implied pole locations with the white squares. For simplicity, let us assume that these two shapes represent the .2 isofootcandle lines and the design criterion is .5 minimum footcandles. The red arrow represents the likely minimum point between two poles and blue line would be the likely minimum on the diagonal.

As you can see with the square distributions on the right, the middle point (blue arrow) would be .8 footcandles (.2 X 4) – i.e. overlit and the point between two poles (red arrow) would only be .4 fc (.2 X 2) – i.e. underlit. In the case of the round distribution, the inner isofootcandle lines (eg. .25 fc) from two poles would meet up at the red arrow and the outer isofootcandle lines (eg. .15 fc) from four poles would meet up at the blue arrow to better meet all of the minimum criteria.

This principle can be fairly easily verified running simulations using different shape patterns with identical isofootcandle perimeters. The widest pole spacings and lowest wattages (i.e. greatest energy savings) can normally be achieved with round patterns if there are no site restrictions.

The FTE therefore will often dictate the least energy efficient distribution.

Sincerely,

Chris Nye, LC

Sales and Marketing Manager

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